

## **ABSTRACT**

Disclosed herein is a hearing improvement device using a multi-coil coupling system and methods for operating such a device. In an embodiment according to the present invention an array microphone may be used to provide highly directional reception. The received audio signal may be filtered, amplified, and converted into a magnetic field for coupling to a telecoil in a conventional hearing aid. Multiple transmit inductors may be used to effectively couple to both in-the-ear and behind-the-ear type hearing aids, and an additional embodiment is disclosed which may be used with an earphone, for users not requiring a hearing aid.